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# NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

VOLUME III. EXOBIOLOGY

SECOND EDITION



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SCIENTIFIC PUBLICATIONS OF THE  
BIOSCIENCE PROGRAMS DIVISION

VOLUME III EXOBIOLOGY  
SECOND EDITION

by

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of the  
Biological Sciences Communication Project

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The George Washington University Medical Center

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PREFACE

As the amount of scientific information continues to "explode", bibliographies have become an important means by which science administrators and research scientists can maintain a current awareness of their primary and relative fields of interest. In addition to listing the available literature, bibliographies can be used to identify scientists, laboratories, and institutions conducting research in similar disciplines, and to examine the growth and changing directions of research in specific subject areas.

The second edition of Scientific Publications of the Bioscience Programs Division of the National Aeronautics and Space Administration consists of six volumes. Volume I, Behavioral Biology, Volume II, Environmental Biology, Volume III, Exobiology, Volume IV, Physical Biology, Volume V, Planetary Quarantine, and Volume VI, Bioscience Communications. Each principal investigator was requested to contribute his current list of publications resulting from research supported by the Bioscience Programs Division, and to edit the citations included in last year's bibliography.

Publications appearing in the serial literature, monographs, and books, through 1967 were used in compiling this bibliography. Theses, doctoral dissertations, unpublished speeches and lectures, and articles "in press" were omitted. Each volume contains a list of citations arranged chronologically according to authors names, a permuted title index, and author index, and a senior author and laboratory directory.

Through the cooperation of the authors and extensive library research on the part of our staff, we have been able to acquire reprints or copies of most of the cited publications. Based on these documents many corrections have been made in publication dates, pagination, and author order. It also became apparent that several of the publications cited last year were not supported by the Bioscience Programs Division, we have deleted these.

The authors gratefully acknowledge the technical assistance of Mrs. Roger Allen, Bert Kenyon, III and of the secretarial staff in the preparation of this report.

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### JOURNALS PUBLISHING EXOBIOLOGY ARTICLES

The following is an alphabetical list of 129 journals which have published 521 articles resulting from research supported by the Exobiology Program of NASA's Bioscience Programs Division, from 1960 through 1967. The numbers following each journal title indicate the total number of articles found in that particular periodicals.

During this 8-year period 77 or 60% published only 1 article each, 39 or 30% published less than 10 articles each. The 2 journals publishing the largest number of articles were "Nature" (68) and "Science" (58). The remaining 11 journals published from 10 to 28 articles each.

- Aerospace Medicine (1)
- American Biology Teacher (1)
- American Journal of Botany (2)
- American Journal of the Diseases of Children (1)
- American Mathematical Monthly (1)
- American Mineralogists (1)
- American Scientist (2)
- Analytical Biochemistry (3)
- Analytical Chemistry (18)
- Annals of the New York Academy of Sciences (9)
- Applied Optics (1)
- Archives of Biochemistry and Biophysics (10)
- Astronautics and Aeronautics (6)
- Astronomical Journal (5)
- The Astrophysical Journal (7)
- Australian Journal of Chemistry (2)
- Bacteriological Proceedings (11)
- Bild der Wissenschaft (1)
- Biochemical and Biophysical Research Communications (7)
- Biochemistry (5)
- Biochimica et Biophysica Acta (10)
- Biologie du Sol (1)
- Biophysical Journal (1)
- Bioscience (3)
- Brookhaven Symposia on Biology (1)
- Bulletin de L'Academie Royale de Medecine de Belgique (1)
- Bulletin of the Chemical Society of Japan (9)
- Bulletin Societes Chimiques Belges (1)
- Canadian Journal of Microbiology (1)
- Carnegie Magazine (1)
- Chemical Communications (8)
- Chemical Geology (1)
- Chemistry (1)
- Chimia (1)
- Cold Spring Harbor Symposia on Quantitative Biology (1)
- Communications of the Lunar and Planetary Laboratory (2)
- Comparative Biochemistry and Physiology (3)
- Cryogenic Technology (1)

Currents in Modern Biology (3)  
Engineering & Science (1)  
Enzymologia (2)  
Europeo (Milan) (1)  
Evolution (1)  
Experimental Cell Research (2)  
Federation Proceedings (10)  
Food Technology (1)  
Genetics (2)  
Geochimica et Cosmochimica Acta (14)  
Geologische Rundschau (1)  
Geologiska föreningens i Stockholm förhandlingar (1)  
Harvard Alumni Bulletin (1)  
Helvetica Chimica Acta (2)  
Icarus (14)  
Immunochemistry (3)  
Indian Journal of Biochemistry (1)  
Industrial Research (1)  
Industry (1)  
IEEE Transactions on Circuit Theory (1)  
Investigative Ophthalmology (1)  
Journal of the American Chemical Society (28)  
Journal of the American Oil Chemists' Society (3)  
Journal of Applied Microbiology (1)  
Journal of the Arkansas Medical Society (1)  
Journal of Bacteriology (16)  
Journal of the Biological Chemistry (9)  
Journal of the British Interplanetary Society (1)  
Journal of Cell Biology (2)  
Journal of Chemical Physics (1)  
Journal of Chromatography (1)  
Journal of Experimental Zoology (1)  
Journal of Gas Chromatography (6)  
Journal of General Microbiology (1)  
Journal of General Physiology (1)  
Journal of Geophysical Research (10)  
Journal of Heterocyclic Chemistry (1)  
Journal of Immunology (1)  
Journal of Inorganic and Nuclear Chemistry (1)  
Journal of Molecular Biology (4)  
Journal of Morphology (1)  
Journal of the Optical Society of America (1)  
Journal of Organic Chemistry (8)  
Journal of Paleontology (1)  
Journal of Physical Chemistry (1)  
Journal of Reproduction and Fertility (2)  
Journal of Sedimentary Petrology (1)  
Journal of Spacecraft and Rockets (1)  
Journal of Theoretical Biology (2)  
Journal of Ultrastructure Research (2)

Kobunshi Kagaku (Chemistry of High Polymers) (1)  
Life Sciences (1)  
Lipids (1)  
Meddeleser Fra Dansk Geologisk Forening (1)  
Meteoritika (2)  
National Geographic (1)  
Nature (68)  
Naturwissenschaften (4)  
Nucleonics (1)  
Palaeontologische Zeitschrift (1)  
Parasitology (1)  
Pediatric Research (1)  
Photochemistry and Photobiology (1)  
Physical Review (1)  
Phytochemistry (1)  
Planetary and Space Science (4)  
Plant Physiology (1)  
Planta (1)  
Proceedings of the Astronautical Society (1)  
Proceedings of the Lunar and Planetary Colloquium (5)  
Proceedings of the National Academy of Sciences, U.S. (11)  
Proceedings of the Society for Analytical Chemistry (1)  
Proceedings of the Society for Experimental Biology and Medicine (1)  
Publications of the Astronomical Society of the Pacific (1)  
Radiation Research (6)  
Review of Palaeobotany and Palynology (1)  
Rochester Review (1)  
Saturday Review (1)  
Science (58)  
Science Journal (1)  
Science Teacher (1)  
Scientific American (1)  
Separation Science (1)  
Space Science Reviews (5)  
Space World (1)  
Technology Review (MIT) (1)  
Tetrahedron (4)  
Tetrahedron Letters (9)  
Verhandlungen der Internationalen Vereinigung für Theoretische und  
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Yale Journal of Biology and Medicine (1)  
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